Claims

1. A method for the production of hyperbranched amylopectin with a weight average molecular weight greater than or equal to 2000 daltons and less than or equal to 30 000 and with an average degree of branching, expressed in mol% of the anhydroglucose units having branch points, of greater than 10% and less than or equal to 20%, in which in a first hydrolysis step the molecular weight of vegetable amylopectins or amylopectin-rich starch is degraded by α-amylase or acid hydrolysis to molecular weights of less than or equal to 60 000 daltons, and in a second hydrolysis step the molecular weight of the degradation product from the first hydrolysis step is further degraded by a β-amylase degradation.

2. The method as claimed in claim 1, in which low molecular weight impurities with an absolute molecular weight of less than 5000 daltons, preferably of less than 1000 daltons, are removed after the first hydrolysis step and/or after the second hydrolysis step.

3. The method as claimed in claim 1 or claim 2, characterized in that the molecular weight of vegetable amylopectins or amylopectin-rich starch is degraded by acid hydrolysis in the first hydrolysis step.

4. The method as claimed in any of claims 1 to 3, characterized in that the hydrolysis product of the second hydrolysis step is coupled to an active pharmaceutical ingredient.

5. The method as claimed in claim 4, characterized in that the active pharmaceutical ingredient is a protein or a polypeptide.

6. The method as claimed in claim 4 or claim 5, characterized in that the coupling of the hydrolysis product of the second hydrolysis step to the active pharmaceutical ingredient takes place at the terminal anhydroglucose unit of the hydrolysis product.

7. The method as claimed in claim 6, characterized in that the terminal reducing end group of the hydrolysis product of the second hydrolysis step is oxidized to the aldonic acid, this aldonic acid group is activated to the aldonic acid ester group and is coupled to the active pharmaceutical ingredient.

8. The method as claimed in claim 6, characterized in that the coupling of the hydrolysis product of the second hydrolysis step to the active pharmaceutical ingredient takes place via a carbonic acid ester group.